

**Laboratory Report Number:** L13111206

Mark Lyon  
Environmental Waste Solutions  
2440 Louisiana Blvd  
Albuquerque, NM 87110

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:  
Stephanie Mossburg – Team Chemist/Data Specialist  
(740) 373-4071  
Stephanie.Mossburg@microbac.com

*I certify that all test results meet all of the requirements of the DoD QSM and other applicable contract terms and conditions. Any exceptions are attached to this cover page or addressed in the method narratives presented in the report. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories, DoD ELAP certification number 2936.01. The reported results are related only to the samples analyzed as received.*

This report was certified on December 05 2013



David Vandenberg – Managing Director

State of Origin: NM  
Accrediting Authority: N/A ID:N/A  
QAPP: DOD Ver 4.1 without flagging



## Record of Sample Receipt and Inspection

### Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

The following discrepancies were noted:

Discrepancy	Resolution
STP-WC-1113: one of the labels for SVOC is marked an an 8330. It looks like client just didn't "cross out" that test code.CLS	8330 was not requested on the COC. Please log per the COC. SLM

### Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00110622	H	0.0		1001845322860004575000803738596975	X

### Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	Yes
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	Yes
7	Were sample labels intact and match COC?	No
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	Yes

**Lab Report #:** L13111206

**Lab Project #:** 3005.011

**Project Name:** White Sands MR

**Lab Contact:** Stephanie Mossburg

**Samples Received**

Client ID	Laboratory ID	Date Collected	Date Received
STP-WC-1113	L13111206-01	11/19/2013 13:35	11/20/2013 11:54



**Login Number:** L13111206  
**Department:** Volatiles  
**Analyst:** Franci Bolden

## METHOD

**Preparation** SW-846 5030C/5035A

**Analysis** SW-846 8260B

## HOLDING TIMES

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## PREPARATION

Sample preparation proceeded normally.

## CALIBRATION

**Initial Calibration:** For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

**Alternate Source Standards:** Recoveries out of range were observed for the following analytes: dichlorodifluoromethane. Please see the applicable QC report for a detailed presentation of the failures.

**Continuing Calibration and Tune:** All acceptance criteria were met.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** Recoveries out of range were observed for the following analytes: acetone. Please see the applicable QC report for a detailed presentation of the failures.

**Matrix Spikes:** The MS/MSD results were not associated with this sample delivery group (SDG), due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac Laboratories recommends site specific MS/MSD samples to avoid possible data

qualifications.

## SAMPLES

**Internal Standards:** All acceptance criteria were met.

**Surrogates:** All acceptance criteria were met.

**Other:** None.

## Manual Integration Reason Codes

**Reason #1: Data System Fails to Select Correct Peak.** In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

**Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak.** This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low area counts for the target compound.

**Reason #3: Improperly Integrated Isomers and/or coeluting compounds.** This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

**Reason #4: System Establishes Incorrect Baseline.** There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

**Reason #5: Miscellaneous.** Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

**Narrative ID:** 75818

**Approved By:** Michael Albertson





**Login Number:** L13111206  
**Department:** Semivolatiles  
**Analyst:** Cassie A. Augenstein

## METHOD

**Preparation** 3510C

**Analysis** SW-846 8270C

## HOLDING TIMES

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## PREPARATION

Sample preparation proceeded normally.

## CALIBRATION

**Initial Calibration:** For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Continuing Calibration and Tune:** Recoveries out of range were observed for the following analytes: 4-Nitrophenol, Benzoic Acid, n-Nitrosodipropylamine, Hexachlorocyclopentadiene. Please see the applicable QC report for a detailed presentation of the failures.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** Recoveries were above the project QAPP limits but within the laboratory statistical limits.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG453741-03	Chrysene	2013-11-25 18:41:00	113	55	110	Recovery
WG453741-03	Hexachlorobenzene	2013-11-25 18:41:00	112	50	110	Recovery

**Matrix Spikes:** There were no MS/MSD results associated with this sample delivery group, due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac recommends site specific MS/MSD samples to avoid possible data qualification.

## SAMPLES

**Samples:** All acceptance criteria were met.

**Internal Standards:** All acceptance criteria were met.

**Surrogates:** All acceptance criteria were met.

## Manual Integration Reason Codes

**Reason #1: Data System Fails to Select Correct Peak** In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peak completely.

**Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak** This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

**Reason #3: Improperly Integrated Isomers and/or coeluting compounds.** This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene and benzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

**Reason #4: System Establishes Incorrect Baseline** There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

**Reason #5: Miscellaneous** Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

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**Narrative ID:** 75719

**Approved By:** Mike Cochran





**Login Number:** L13111206  
**Department:** Conventionals  
**Analyst:** Tammy Morris

## METHOD

**Analysis** SW846 9040C,9045D/EPA 150.1/SM4500-H B (pH)

## HOLDING TIMES

**Sample Analysis:** All holding times were met.

## PREPARATION

Sample preparation proceeded normally.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

**Duplicates:** All acceptance criteria were met.

## SAMPLES

**Samples:** All acceptance criteria were met.

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**Narrative ID:** 75393  
**Approved By:** Deanna Hesson

A handwritten signature in black ink, appearing to read "Deanna Hesson", is written over a horizontal line.



**Login Number:** L13111206  
**Department:** Metals  
**Analyst:** Ji Hu

## METHOD

**Preparation:** SW-846 3015

**Analysis:** SW-846 6010

## HOLDING TIMES

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## PREPARATION

Sample preparation proceeded normally.

## CALIBRATION

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration Verification:** All acceptance criteria were met.

**Continuing Calibration Blank:** WG454456 - The continuing calibration blank analyzed on 27-Nov-2013 at 14:52 yielded results for arsenic and lead whose absolute values exceeded the LOD, the continuing calibration blanks analyzed on 27-Nov-2013 at 15:24 and 15:57 yielded results for lead whose absolute values exceeded the LOD. Client sample 01 yielded nondetected results for arsenic and lead. With permission of the project chemist, the arsenic and lead results were reported with 'B' qualifiers to indicate the association with noncompliant CCBs and no further action was taken.

## BATCH QA/QC

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG454456 - All acceptance criteria were met.

**Matrix Spikes:** All acceptance criteria were met.

## **SAMPLES**

**Samples:** All acceptance criteria were met.

**Narrative ID:** 75605

**Approved By:** Maren Beery

*Maren Beery*



**Login Number:** L13111206  
**Department:** Metals  
**Analyst:** Ji Hu

## **METHOD**

**Preparation:** SW-846 3015

**Analysis:** SW-846 6020

## **HOLDING TIMES**

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration:** All acceptance criteria were met.

**Continuing Calibration Blank:** All acceptance criteria were met.

**Low Level Check:** All acceptance criteria were met.

## **BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG453994 - All acceptance criteria were met.

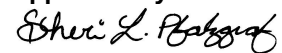
**Matrix Spikes:** All acceptance criteria were met.

## **SAMPLES**

**Samples:** All acceptance criteria were met.

**Narrative ID:** 75148

**Approved By:** Sheri Pfalzgraf





**Login Number:** L13111206  
**Department:** Metals - AA  
**Analyst:** Pierce Morris

## **METHOD**

**Preparation:** SW-846 7470

**Analysis:** SW-846 7470

## **HOLDING TIMES**

**Sample Preparation:** All holding times were met.

**Sample Analysis:** All holding times were met.

## **PREPARATION**

Sample preparation proceeded normally.

## **CALIBRATION**

**Initial Calibration:** All acceptance criteria were met.

**Alternate Source Standards:** All acceptance criteria were met.

**Interference Check Standards:** All acceptance criteria were met.

**Continuing Calibration Verification:** All acceptance criteria were met.

**Continuing Calibration Blank:** All acceptance criteria were met.

## **BATCH QA/QC**

**Method Blank:** All acceptance criteria were met.

**Laboratory Control Sample:** All acceptance criteria were met.

**Serial Dilution/Post Digestion Spikes:** WG453839 - All acceptance criteria were met.

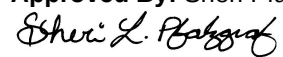
**Matrix Spikes:** All acceptance criteria were met.

## **SAMPLES**

**Samples:** All acceptance criteria were met.

**Narrative ID:** 75095

**Approved By:** Sheri Pfalzgraf



### Certificate of Analysis

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> HPMS8
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 5030B/5030C/5035A	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 8260B	<b>Cal Date:</b> 10/13/2013 21:32
<b>Workgroup #:</b> WG454690	<b>Analyst:</b> FJB	<b>Run Date:</b> 12/01/2013 15:06
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> 8M393018
<b>Sample Tag:</b> 01	<b>Units:</b> ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
1,1,1-Trichloroethane	71-55-6		U	1.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	1.00	0.200
1,1,2-Trichloroethane	79-00-5		U	1.00	0.250
1,1-Dichloroethane	75-34-3		U	1.00	0.125
1,1-Dichloroethene	75-35-4		U	1.00	0.500
1,2,3-Trichloropropane	96-18-4		U	1.00	0.500
1,2,4-Trichlorobenzene	120-82-1		U	1.00	0.200
1,2,4-Trimethylbenzene	95-63-6		U	1.00	0.250
1,2-Dibromo-3-chloropropane	96-12-8		U	2.00	1.00
1,2-Dibromoethane	106-93-4		U	1.00	0.250
1,2-Dichlorobenzene	95-50-1		U	1.00	0.125
1,2-Dichloroethane	107-06-2		U	1.00	0.250
1,2-Dichloropropane	78-87-5		U	1.00	0.200
1,3,5-Trimethylbenzene	108-67-8		U	1.00	0.250
1,3-Dichlorobenzene	541-73-1		U	1.00	0.250
1,4-Dichlorobenzene	106-46-7		U	1.00	0.125
2-Butanone	78-93-3		U	5.00	2.50
2-Chlorotoluene	95-49-8		U	1.00	0.125
2-Hexanone	591-78-6		U	5.00	2.50
4-Chlorotoluene	106-43-4		U	1.00	0.250
4-Methyl-2-pentanone	108-10-1		U	5.00	2.50
Acetone	67-64-1	8.25	Q	5.00	2.50
Benzene	71-43-2		U	1.00	0.125
Bromobenzene	108-86-1		U	1.00	0.125
Bromodichloromethane	75-27-4		U	1.00	0.250
Bromoform	75-25-2		U	1.00	0.500
Bromomethane	74-83-9		U	1.00	0.500
Carbon disulfide	75-15-0		U	1.00	0.500
Carbon tetrachloride	56-23-5		U	1.00	0.250
Chlorobenzene	108-90-7		U	1.00	0.125
Chlorodibromomethane	124-48-1		U	1.00	0.250
Chloroethane	75-00-3		U	1.00	0.500
Chloroform	67-66-3		U	1.00	0.125

### Certificate of Analysis

Analyte	CAS #	Result	Qual	LOQ	LOD
Chloromethane	74-87-3		U	1.00	0.500
cis-1,2-Dichloroethene	156-59-2		U	1.00	0.250
cis-1,3-Dichloropropene	10061-01-5		U	1.00	0.250
Dichlorodifluoromethane	75-71-8		U	1.00	0.250
Ethylbenzene	100-41-4		U	1.00	0.250
Hexachlorobutadiene	87-68-3		U	1.00	0.250
Isopropylbenzene	98-82-8		U	1.00	0.250
Methyl t-butyl ether (MTBE)	1634-04-4		U	1.00	0.500
Methylene chloride	75-09-2		U	1.00	0.250
n-Butylbenzene	104-51-8		U	1.00	0.250
n-Propylbenzene	103-65-1		U	1.00	0.125
Naphthalene	91-20-3		U	1.00	0.200
sec-Butylbenzene	135-98-8		U	1.00	0.250
Styrene	100-42-5		U	1.00	0.125
tert-Butylbenzene	98-06-6		U	1.00	0.250
Tetrachloroethene	127-18-4		U	1.00	0.250
Toluene	108-88-3		U	1.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	1.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	1.00	0.500
Trichloroethene	79-01-6		U	1.00	0.250
Trichlorofluoromethane	75-69-4		U	1.00	0.250
Vinyl acetate	108-05-4		U	5.00	2.50
Vinyl chloride	75-01-4		U	1.00	0.250
Xylenes	1330-20-7		U	1.00	0.500
Surrogate	Recovery	Lower Limit	Upper Limit	Q	
1,2-Dichloroethane-d4	91.3	70	120		
4-Bromofluorobenzene	90.1	75	120		
Dibromofluoromethane	105	85	115		
Toluene-d8	97.1	85	120		
Q	One or more quality control criteria failed. See narrative.				
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> HPMS4
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 3510C	<b>Prep Date:</b> 11/21/2013 08:33
<b>Matrix:</b> Water	<b>Analytical Method:</b> 8270C	<b>Cal Date:</b> 10/29/2013 16:46
<b>Workgroup #:</b> WG453961	<b>Analyst:</b> CAA	<b>Run Date:</b> 11/27/2013 20:50
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> 4M68368
<b>Sample Tag:</b> 01	<b>Units:</b> ug/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
1,2,4-Trichlorobenzene	120-82-1		U	10.5	2.63
1,2-Dichlorobenzene	95-50-1		U	10.5	2.63
1,3-Dichlorobenzene	541-73-1		U	10.5	2.63
1,4-Dichlorobenzene	106-46-7		U	10.5	2.63
2,4,5-Trichlorophenol	95-95-4		U	10.5	2.63
2,4,6-Trichlorophenol	88-06-2		U	10.5	2.63
2,4-Dichlorophenol	120-83-2		U	10.5	2.63
2,4-Dimethylphenol	105-67-9		U	10.5	2.63
2,4-Dinitrophenol	51-28-5		U	42.1	13.2
2,4-Dinitrotoluene	121-14-2		U	10.5	2.63
2,6-Dinitrotoluene	606-20-2		U	10.5	2.63
2-Chloronaphthalene	91-58-7		U	10.5	2.63
2-Chlorophenol	95-57-8		U	10.5	2.63
2-Methylnaphthalene	91-57-6		U	10.5	2.63
2-Methylphenol	95-48-7		U	10.5	2.63
2-Nitroaniline	88-74-4		U	42.1	13.2
2-Nitrophenol	88-75-5		U	10.5	2.63
3,3'-Dichlorobenzidine	91-94-1		U	10.5	2.63
3-,4-Methylphenol	106-44-5		U	10.5	2.63
3-Nitroaniline	99-09-2		U	42.1	13.2
4,6-Dinitro-2-methylphenol	534-52-1		U	42.1	13.2
4-Bromophenyl-phenylether	101-55-3		U	10.5	2.63
4-Chloro-3-methylphenol	59-50-7		U	10.5	2.63
4-Chloroaniline	106-47-8		U	10.5	2.63
4-Chlorophenyl-phenyl ether	7005-72-3		U	10.5	2.63
4-Nitroaniline	100-01-6		U	42.1	13.2
4-Nitrophenol	100-02-7		U	42.1	13.2
Acenaphthene	83-32-9		U	10.5	2.63
Acenaphthylene	208-96-8		U	10.5	2.63
Anthracene	120-12-7		U	10.5	2.63
Benzo(a)anthracene	56-55-3		U	10.5	2.63
Benzo(a)pyrene	50-32-8		U	10.5	2.63

### Certificate of Analysis

Analyte	CAS #	Result	Qual	LOQ	LOD
Benzo(b)fluoranthene	205-99-2		U	10.5	2.63
Benzo(g,h,i)Perylene	191-24-2		U	10.5	2.63
Benzo(k)fluoranthene	207-08-9		U	10.5	2.63
Benzoic acid	65-85-0		U	42.1	13.2
Benzyl alcohol	100-51-6		U	10.5	2.63
Bis(2-Chloroethoxy)Methane	111-91-1		U	10.5	2.63
Bis(2-Chloroethyl)ether	111-44-4		U	10.5	2.63
bis(2-Chloroisopropyl)ether	39638-32-9		U	10.5	2.63
bis(2-Ethylhexyl)phthalate	117-81-7		U	10.5	3.16
Butylbenzylphthalate	85-68-7		U	10.5	2.63
Chrysene	218-01-9		U	10.5	2.63
Di-N-Butylphthalate	84-74-2		U	10.5	2.63
Di-n-octylphthalate	117-84-0		U	10.5	2.63
Dibenzo(a,h)Anthracene	53-70-3		U	10.5	2.63
Dibenzofuran	132-64-9		U	10.5	2.63
Diethylphthalate	84-66-2		U	10.5	2.63
Dimethylphthalate	131-11-3		U	10.5	2.63
Fluoranthene	206-44-0		U	10.5	2.63
Fluorene	86-73-7		U	10.5	2.63
Hexachlorobenzene	118-74-1		U	10.5	2.63
Hexachlorobutadiene	87-68-3		U	10.5	2.63
Hexachlorocyclopentadiene	77-47-4		U	10.5	2.63
Hexachloroethane	67-72-1		U	10.5	2.63
Indeno(1,2,3-cd)pyrene	193-39-5		U	10.5	2.63
Isophorone	78-59-1		U	10.5	2.63
N-Nitroso-di-n-propylamine	621-64-7		U	10.5	2.63
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	10.5	2.63
Naphthalene	91-20-3		U	10.5	2.63
Nitrobenzene	98-95-3		U	10.5	2.63
Pentachlorophenol	87-86-5		U	42.1	13.2
Phenanthrene	85-01-8		U	10.5	2.63
Phenol	108-95-2		U	10.5	2.63
Pyrene	129-00-0		U	10.5	2.63
Surrogate	Recovery	Lower Limit	Upper Limit	Q	
2,4,6-Tribromophenol	103	40	125		
2-Fluorobiphenyl	60.0	50	110		
2-Fluorophenol	28.9	20	110		
Nitrobenzene-d5	53.8	40	110		
p-Terphenyl-d14	88.1	50	135		

### Certificate of Analysis

Surrogate	Recovery	Lower Limit	Upper Limit	Q
Phenol-d5	24.9	10	115	
U	Analyte was not detected. The concentration is below the reported LOD.			

## Certificate of Analysis

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> PE-ICP2
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/25/2013 15:13
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6010B	<b>Cal Date:</b> 11/27/2013 13:58
<b>Workgroup #:</b> WG454456	<b>Analyst:</b> JYH	<b>Run Date:</b> 11/27/2013 15:27
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> P2.112713.152750
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Arsenic, Total	7440-38-2			0.0100	0.00500
Barium, Total	7440-39-3	0.0191		0.0100	0.00500
Cadmium, Total	7440-43-9		U	0.0100	0.00500
Chromium, Total	7440-47-3		U	0.0200	0.0100
Lead, Total	7439-92-1			0.0100	0.00500
Silver, Total	7440-22-4		U	0.0100	0.00500
U	Analyte was not detected. The concentration is below the reported LOD.				

## Certificate of Analysis

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ICP-MS2
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 3015	<b>Prep Date:</b> 11/22/2013 10:20
<b>Matrix:</b> Water	<b>Analytical Method:</b> 6020	<b>Cal Date:</b> 11/22/2013 09:47
<b>Workgroup #:</b> WG453994	<b>Analyst:</b> JYH	<b>Run Date:</b> 11/22/2013 15:56
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> NI.112213.155653
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Selenium, Total	7782-49-2	0.00410		0.00100	0.000500

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> CVAA1
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 7470A	<b>Prep Date:</b> 11/21/2013 10:05
<b>Matrix:</b> Water	<b>Analytical Method:</b> 7470A	<b>Cal Date:</b> 11/22/2013 09:05
<b>Workgroup #:</b> WG453839	<b>Analyst:</b> PDM	<b>Run Date:</b> 11/22/2013 10:11
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> M7.112213.101126
<b>Sample Tag:</b> 01	<b>Units:</b> mg/L	

Analyte	CAS #	Result	Qual	LOQ	LOD
Mercury	7439-97-6		U	0.000200	0.000100
U	Analyte was not detected. The concentration is below the reported LOD.				

### Certificate of Analysis

<b>Sample #:</b> L13111206-01	<b>PrePrep Method:</b> N/A	<b>Instrument:</b> ORION-4STAR
<b>Client ID:</b> STP-WC-1113	<b>Prep Method:</b> 9040C	<b>Prep Date:</b> N/A
<b>Matrix:</b> Water	<b>Analytical Method:</b> 9040C	<b>Cal Date:</b>
<b>Workgroup #:</b> WG453693	<b>Analyst:</b> TMM	<b>Run Date:</b> 11/20/2013 17:30
<b>Collect Date:</b> 11/19/2013 13:35	<b>Dilution:</b> 1	<b>File ID:</b> OS13112114385301
<b>Sample Tag:</b>	<b>Units:</b> UNITS	

Analyte	CAS #	Result	Qual	LOQ	LOD
Corrosivity pH	10-29-7	7.68		0.000	0.000
Temperature At Determination (C)		21.8		0.000	0.000

Certificate of Analysis

Microbac Laboratories Inc.  
Ohio Valley Division Analyst List  
December 5, 2013

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001 - BIO-CHEM TESTING WVDEP 220	002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental	004 - MICROBAC PITTSBURGH
ADC - ANTHONY D. CANTER	ADG - APRIL D. GREENE
AJF - AMANDA J. FICKIESEN	AML - TONY M. LONG
AZH - AFTER HOURS	BAF - BRICE A. FENTON
BJO - BRIAN J. OGDEN	BLG - BRENDA L. GREENWALT
BRG - BRENDA R. GREGORY	CAA - CASSIE A. AUGENSTEIN
CAF - CHERYL A. FLOWERS	CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD	CLS - CARA L. STRICKLER
CLW - CHARISSA L. WINTERS	CPD - CHAD P. DAVIS
CRW - CHRISTINA R. WILSON	CSH - CHRIS S. HILL
CTB - CHRIS T. BUCINA	DAK - DEAN A. K
DCM - DAVID C. MERCKLE	DDE - DEBRA D. ELLIOTT
DEV - DAVID E. VANDENBERG	DIH - DEANNA I. HESSON
DLB - DAVID L. BUMGARNER	DLP - DOROTHY L. PAYNE
DLR - DIANNA L. RAUCH	DSM - DAVID S. MOSSOR
ECL - ERIC C. LAWSON	EDL - ERIN D. LONG
ENY - EMILY N. YOAK	EPT - ETHAN P. TIDD
ERP - ERIN R. PORTER	FJB - FRANCES J. BOLDEN
HCB - HEIDI C. BROWN	HJR - HOLLY J. REED
JBK - JEREMY B. KINNEY	JDH - JUSTIN D. HESSON
JKS - JANE K. SCHAAD	JLL - JOHN L. LENT
JWR - JOHN W. RICHARDS	JWS - JACK W. SHEAVES
JYH - JI Y. HU	KDW - KATHRYN D. WELCH
KEB - KATIE E. BARNES	KHR - KIM H. RHODES
KRA - KATHY R. ALBERTSON	KRB - KAELY R. BECKER
KSC - KELLY S. CUNNINGHAM	LKN - LINDA K. NEDEFF
LLS - LARRY L. STEPHENS	LSB - LESLIE S. BUCINA
MBK - MORGAN B. KNOWLTON	MDA - MIKE D. ALBERTSON
MDC - MIKE D. COCHRAN	MES - MARY E. SCHILLING
MLW - MATTHEW L. WARREN	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	MSW - MATT S. WILSON
PDM - PIERCE D. MORRIS	PIT - MICROBAC WARRENDALE
PSW - PEGGY S. WEBB	QX - QIN XU
RAH - ROY A. HALSTEAD	REK - BOB E. KYER
RLB - BOB BUCHANAN	RM - RAYMOND MALEKE
RNP - RICK N. PETTY	RS - ROSEMARY SCOTT
RWC - RODNEY W. CAMPBELL	SAV - SARAH A. VANDENBERG
SEP - SUZANNE J. PAUGH	SLM - STEPHANIE L. MOSSBURG
SLP - SHERI L. PFALZGRAF	TLC - TYLER L. CORDELL
TMB - TIFFANY M. BAILEY	TMM - TAMMY M. MORRIS
TPA - TYLER P. AMRINE	VC - VICKI COLLIER
WJB - WILL J. BEASLEY	WTD - WADE T. DELONG
XXX - UNAVAILABLE OR SUBCONTRACT	

December 05, 2013

Qualkey: DOD

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Greater than
A	See the report narrative
B	The reported result is associated with a contaminated method blank.
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidelines for requested testing.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
F,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
FL	Free Liquid
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	Estimated concentration; sample matrix interference.
J	Estimated value ; the analyte concentration was greater than the highest standard
J	Estimated value ; the analyte concentration was less than the LOQ.
J	The reported result is an estimated value.
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ.
J,CT1	Estimated value; the analyte concentration was less than the RL/LOQ. The cooler temperature at receipt exceeded regula
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
JB	The reported result is an estimated value. The reported result is also associated with a contaminated method blank.
JQ	The reported result is an estimated value and one or more quality control criteria failed. See narrative.
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Nontarget analyte; the analyte is a tentatively identified compound (TIC) by GC/MS
NA	Not applicable
ND	Not detected at or above the reporting limit (RL/MDL).
ND, CT1	Analyte was not detected. The concentration is below the reported LOD. The cooler temperature at receipt exceeded reg
ND, H1	Not detected; Sample analysis performed past holding time.
ND, L	Not detected; sample reporting limit (RL) elevated due to interference
ND, S	Not detected; analyzed by method of standard addition (MSA)
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Analyte was not detected. The concentration is below the reported LOD.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
UQ	Undetected; the analyte was analyzed for, but not detected.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Z	Cannot be resolved from isomer - see below





## CHAIN-OF-CUSTODY RECORD

Company Name: C B & I					
Project Contact: Mark Lyon		Contact Phone #: 505-			
Turn Around Requirements: Normal		Location: STP WSNR			
Project ID: WSMR STP					
Sampler (print): Bradley T. Davis		Signature: <i>[Signature]</i>			
Sample I.D. No.	Grab	Date	Time	Matrix*	
STP-WC-1113	X	11-19-13	1335	W	
NUMBER OF CONTAINERS					
Hold					
VOCs	X				
SVOCs	X				
RCRA metals	X				
pH	X				
TOTAL # (LAB USE)					
Program					
<input type="checkbox"/> CWA					
<input type="checkbox"/> RCRA					
<input type="checkbox"/> DOD					
<input type="checkbox"/> AFCEE					
<input type="checkbox"/> Other					
ADDITIONAL REQUIREMENTS					

Relinquished by:  
(Signature) *B.T. Davis*

Relinquished by:  
(Signature) *[Signature]*

Received: 11/20/2013 11:54  
By: ROSEMARY SCOTT

Microbac OVD

Barcode

Received: 11/20/2013 11:54  
By: ROSEMARY SCOTT

Remarks:

\*Water (W), Soil (S), Solid Waste (SD), Unknown (X)

## Internal Chain of Custody Report

Login: L13111206

Account: 3005

Project: 3005.011

Samples: 1

Due Date: 29-NOV-2013

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L13111206-01	282007	826-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-NOV-2013 13:17	CLS		<2
2	ANALYZ	V1	ORG4	21-NOV-2013 09:19	JLL	CLS	

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-NOV-2013 13:17	CLS		<2
2	ANALYZ	V1	ORG4	21-NOV-2013 09:19	JLL	CLS	

Bottle: 3

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	V1	20-NOV-2013 13:17	CLS		<2
2	ANALYZ	V1	ORG4	21-NOV-2013 09:19	JLL	CLS	

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L13111206-01	282008	827-SPE

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	20-NOV-2013 13:17	CLS		
2	PREP	W1	EXT	21-NOV-2013 08:46	CPD	CLS	
3	DISP	EXT	DISP	22-NOV-2013 07:02	RLB	RLB	
4	ANALYZ*	EXT	SEMI	22-NOV-2013 09:03	CAA	CPD	

*\*Sample extract/digestate/leachate*

Bottle: 2

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	20-NOV-2013 13:17	CLS		
2	STORE	W1	A2	25-NOV-2013 09:21	RS	RS	

*\*Sample extract/digestate/leachate*

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L13111206-01	282009	COR-PH

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	20-NOV-2013 13:17	CLS		
2	ANALYZ	W1	WET	20-NOV-2013 13:44	DLP	CLS	
3	ANALYZ	WET	A1	21-NOV-2013 16:44	CLS	EPT	

A1 - Sample Archive (COLD)  
 A2 - Sample Archive (AMBIENT)  
 F1 - Volatiles Freezer in Login  
 V1 - Volatiles Refrigerator in Login  
 W1 - Walkin Cooler in Login



## Internal Chain of Custody Report

**Login:** L13111206**Account:** 3005**Project:** 3005.011**Samples:** 1**Due Date:** 29-NOV-2013

<u>Samplenum</u>	<u>Container ID</u>	<u>Products</u>
L13111206-01	282010	AG AS-AX BA CD CR HG PB-AX SE-MS

Bottle: 1

Seq.	Purpose	From	To	Date/Time	Accept	Relinquish	pH
1	LOGIN	COOLER	W1	20-NOV-2013 13:17	CLS		
2	PREP	W1	DIG	21-NOV-2013 09:37	REK	CLS	
3	ANALYZ*	DIG	METALS	21-NOV-2013 13:17	PDM	REK	
4	STORE	DIG	A1	25-NOV-2013 15:45	RS	ERP	

***\*Sample extract/digestate/leachate***

A1 - Sample Archive (COLD)  
A2 - Sample Archive (AMBIENT)  
F1 - Volatiles Freezer in Login  
V1 - Volatiles Refrigerator in Login  
W1 - Walkin Cooler in Login

